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IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

T-NETIX, INC., *Plaintiff,* And COMMUNICATION EQUIPMENT & ENGINEERING COMPANY, *Involuntary Plaintiff,* v. MCI WORLDCOM COMMUNICATIONS, INC. and GLOBAL TEL*LINK CORPORATION, *Defendants.*	§	**Civil Action No. 2-01 CV 189 DF** Judge David V. Folsom **Jury Trial Requested**

DEFENDANTS' RESPONSE TO PLAINTIFF'S MARKMAN CLAIM
CONSTRUCTION BRIEF FOR THE KITCHIN '702 PATENT

As to several of the terms of the '702 Patent, Plaintiff proposes an improper construction. These improper constructions generally arise from two flaws in Plaintiff's reasoning. First, Plaintiff fails to apply the proper test for determining the meaning of a claim element that is expressed in the means-plus-function format. Second, Plaintiff ignores the intrinsic evidence provided by the '702 Patent document itself.

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A. T-Netix Improperly Construes "Low Pass Filter Means"

Beginning at paragraph 2 on page 26 of Plaintiff's MCC Brief, T-Netix proposes that the "low pass filter means" should be construed as:

> An analog filter or a digital filter, including a digital signal processor, capable of passing frequencies below about 500 Hz, and equivalents thereof.

T-Netix thus proposes that "low pass filter means" should include not only an analog filter but also a digital filter that includes a digital signal processor.

T-Netix's proposed construction of "low pass filter means" is incorrect as a matter of law because only an analog filter that significantly attenuates energy at frequencies above 300 Hz, satisfies the proper construction of the "low pass filter means" that is an element of each of claims 1-6 and 16-18.

T-Netix and Defendants agree that the "low pass filter means" of claims 1-6 and 16-18 is written in the means-plus-function format. This format imposes restrictions on the meaning that can be given to the "low pass filter means." Because this "low pass filter means" is written in the means-plus-function format, its meaning is limited to the exact structure that is disclosed in the '702 patent for performing the recited function or to known equivalents of that disclosed structure. Valmont Industries, Inc. v. Reinke Mfg. Co., 983 F.2d 1039, 1042 (Fed. Cir. 1993). Accordingly, the first task in determining the proper construction of this "low pass filter means" is to identify the function that is being performed. And once the first task is done, then all that remains to be done in order to determine the proper construction of this "low pass filter means" is to find the specific structure that the '702 Patent uses to perform the identified function. Medtronic, Inc. v. Advanced Cardiovascular Systems, Inc., 248 F.3d 1303, 1311 (Fed. Cir. 2001).

The actual claim element that is being construed in claims 1-6 and 16-17 is the "low pass filter **means for passing energy** received by the local telephone equipment having frequencies below about 500 Hz." Emphasis added. The actual claim element that is being construed in claim 18 is the "low pass filter means for passing energy having frequencies below about 500 Hz." Emphasis added. T-Netix has adopted the phrase "low pass filter means" as a shorthand notation for each of these similar claim elements, and that notation is used in this discussion.

That the "energy" that is passed by the "low pass filter means," is electrical energy, is apparent from a further reading of claims 1, 16 and 18. Of particular significance in this regard is the language in the claim element that immediately follows the "low pass filter means" in each of claims 1-6 and 16-18. That language is the "specific **electrical energy** pulse having been filtered by said filter means." Emphasis added. According to each of claims 1-6 and 16-18, this "**electrical energy** pulse" has been filtered by the "low pass filter means."

That the "**electrical energy** pulse" is an analog voltage signal (damped voltage oscillation) is explicitly stated for example at column 17, lines 22-37 of the '702 Patent as follows (emphasis added):

> Hookflash and rotary dial loop current interruptions at the called party telephone result in voltage excursions of about 55-60 volts, at the called party telephone, each time the loop current is broken. This is due to the inductive effects of the telephone company lines. Central Office equipment detects the current interruptions directly and attenuate the voltage excursions as undesirable noise. This voltage excursion, along with the characteristic impedance of the telephone company lines, results in a characteristic **damped oscillation** with peak energy between 200 and 300 Hz. The peak **voltage** seen at the originating telephone is significantly less. In order to facilitate repeatable detection

> of **this damped oscillation**, it is desirable to have peak **voltage excursions of these damped oscillations** it is desirable to have peak **voltage excursions of these damped oscillations** at a consistent level on all calls.

Plaintiff's expert, Mr. McAlexander, also relies on this passage in page C-a6 of his claim chart submitted as Plaintiff's evidence for the meaning of the "electrical energy pulse." Accordingly, the electrical energy pulse is an analog voltage signal rather than a digital signal.

Turning to the first task, the recited function that is to be performed by the "low pass filter means" of claims 1-6, 16 and 17 is one of "passing energy received by the local telephone equipment having frequencies below about 500 Hz." Similarly, the recited function that is to be performed by the "low pass filter means" of claim 18 is one of "passing energy having frequencies below about 500 Hz." Because it has been determined that it is electrical energy that is being passed by the "low pass filter means" of claims 1-6, and 16-18, the function being performed is restricted to **the passage of electrical energy** having frequencies below about 500 Hz. In the case of claims 1-6, 16 and 17, this **electrical energy** is identified as having been received by the local telephone equipment.

Accordingly, the next task in determining the meaning of the "low pass filter means" is to review the '702 Patent to find the corresponding structure that performs the identified "electrical energy passing" function. Reviewing the drawings and text of the '702 patent reveals that the words "LOW PASS FILTER" are present in FIG. 1, FIG. 1A and in the written text that precedes the claims that are recited at the end of the '702 Patent. Each of the block diagrams of FIGS. 1 and 1A includes a block that is labeled with the phrase "280 Hz LOW PASS FILTER." This block is designated by the numeral

400 in FIG. 1. At column 9, lines 23-25, the '702 patent refers to the circuit diagram in FIG. 1 when explaining that (emphasis added):

> Block 400 is a **Low Pass Filter** (LPF). LPF block 400 **passes frequencies below 280 Hz** while significantly attenuating signals above 300 Hz.

Plaintiff's expert, Mr. McAlexander, also relies on this passage in page C-a2 of his claim chart submitted as Plaintiff's evidence for the meaning of the "low pass filter means." Thus, the '702 Patent explicitly discloses that the Low Pass Filter Block 400 passes electrical energy at frequencies below 280 Hz, which is of course below 500 Hz. Accordingly, the '702 Patent discloses that the Low Pass Filter of Block 400 performs the required function of the "low pass filter means."

The search for the specific device that does what is required of the Low Pass Filter of Block 400, namely, **passing frequencies below 280 Hz while significantly attenuating signals above 300 Hz**, leads to column 18, line 63 - column 19, line 3, of the '702 Patent, which explains that (emphasis added):

> **the filter requirements are to reject as much energy as possible above about 300 Hz, and have reasonably undistorted response below about 300 Hz.** These **requirements** can be reasonably met by a **Chebychev type filter** response. It is herein suggested that a **Low Pass Filter** with a **corner frequency of about 280 Hz, attenuation of 20 dB or more at 300 Hz**, and pass band ripple of 3.0 dB or less is readily implemented and is sufficient for this application.

Again, Plaintiff's expert, Mr. McAlexander, also relies on this passage in pages C-a2 and C-a3 of his claim chart submitted as Plaintiff's evidence for the meaning of the "low pass filter means."

The "702 patent is very specific about the device that performs the "electrical energy passing" function that is recited in the "low pass filter means." This Block 400 device shown in FIG. 1 is a **Low Pass Filter** with a **corner frequency of about 280 Hz, attenuation of 20 dB or more at 300 Hz**, and pass band ripple of 3.0 dB or less. The corner frequency is the frequency at which attenuation of the signal begins to occur. In the case of the '702 Patent, the attenuation begins to occur at 280 Hz and is substantially complete at a frequency of about 300 Hz. The 300 Hz upper limit is confirmed explicitly in the following passage at column 3, lines 18-19 of the '702 Patent (emphasis added):

> The low pass filter (LPF) **limits** frequency input to an energy detector to **frequencies below 300 Hz**.

Each of claims 1-6 and 16-18 requires the "low pass filter means" to filter an "electrical energy pulse" and pass it through if its frequency is below 280 Hz and substantially attenuate it if its frequency is greater than 300 Hz. Electrical energy pulses between 280 and 300 Hz will be increasingly attenuated as 300 Hz is approached. A digital filter with a digital signal processor simply does not perform this essential stated function of the "low pass filter means" elements of claims 1-6 and 16-18 of the '702 Patent.

By definition, the electricity that constitutes an electrical energy pulse cannot pass through a digital filter or digital signal processor. [1] A digital signal processor receives

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[1] A device (known as an analog-to-digital converter) can be used to successively assign numerical values to represent each discrete small part of an electrical energy pulse (an analog signal). The combination of all of these numbers in series becomes a digital signal that is a mathematical representation of the electrical energy pulse. A digital signal processor (DSP), which is a specialized microprocessor (computer), receives the series of numbers (the digital signal) and uses algorithms to perform various mathematical operations upon these numbers. The end result of these mathematical

numerical data as its input and yields numerical data as its output. Thus, a digital filter and a digital signal processor are incapable of satisfying the "electrical energy passing" function that is required to satisfy the proper construction of the "low pass filter means" of claims 1-6 and 16-18. The "electrical energy passing" function that is required by the "low pass filter means" disqualifies any digital components as candidates for specific structure that satisfies this function.

It is important to note that the '702 Patent never states that the "low pass filter means" is a digital filter, including a digital signal processor, capable of passing frequencies below about 500 Hz, as in the claim construction that is urged by Plaintiff. When the '702 patent offers the digital filter and digital signal processor as optional implementations of LPF Block 400 (col. 9, lines 28-33), this statement does not automatically qualify these optional implementations as being within the scope of the "low pass filter means." As noted above, the interpretation of the "low pass filter means" depends on the function, which is one of passing energy. While the optional implementation that is known as a band pass filter operates in a way that passes energy, the digital filter and the digital signal processor do not pass electrical energy. Not every optional implementation of a particular component will fall within the scope of every claim. Thus, the digital filter and digital signal processor components do not fall within the scope of the "low pass filter means" recited in each of claims 1-6 and 16-18.

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operations can be the extraction of information about the digital signal from these numbers or the transformation of these numbers to mathematically emulate a modification of the original digital signal. Rebuttal Expert Report of Dr. Hubbard, Section 7.4.

The only structure identified in the '702 specification that *can* perform the stated function of passing electrical energy based on its frequency is an analog filter. Accordingly, the following modification of T-Netix's proposed construction of the "low pass filter means" of each of claims 1-6 and 16-18 would be acceptable:

> An analog filter capable of passing frequencies below about 500 Hz, while significantly attenuating signals above 300 Hz, and known equivalents thereof.

As to the known equivalents, the "electrical energy passing" function that is required by the "low pass filter means," disqualifies any digital components as candidates for specific structure that is an equivalent of the analog filter. Moreover, the requirement of passing frequencies below 280 Hz while significantly attenuating signals above 300 Hz remains. Accordingly, even if a digital filter that includes a digital signal processor were to be considered to be an equivalent of the analog filter, that digital filter must still significantly attenuate signals having frequencies above 300 Hz. Thus, the Plaintiff's asserted construction of the "low pass filter means" of claims 1-6 and 16-18 is incorrect because it fails to include the requirement that the filter must significantly attenuate signals above 300 Hz.

Moreover, a digital filter is not the "known equivalent" of the analog filter for purposes of construing the "low pass filter means" of claims 1-6 and 16-18. An equivalent must perform the function in the same way to achieve the same result as the structure that is disclosed as satisfying the "low pass filter means." Kemco Sales, Inc. v. Control Papers Co., 208 F.3d 1352, 1364 (Fed. Cir. 2000). In order to be deemed an equivalent, the digital filter would need to function in the same way as the analog filter. An analog filter operates in a different way than a digital filter. Thus, even if the digital

filter were to achieve the same result (passing below 500 Hz while significantly attenuating above 300 Hz) as the analog filter, since the digital filter does not achieve the same result in the same way as the analog filter, the digital filter cannot be deemed an equivalent of the analog filter as a matter of law. Accordingly, the Court's construction of the "low pass filter means" should exclude the "digital filter, including a digital signal processor," that is asserted by T-Netix.

In summary, the Court's construction of the "low pass filter means" of claims 1-6 and 16-18 should be held to an analog filter that significantly attenuates energy at frequencies above 300 Hz.

B. T-Netix Improperly Construes "Hook-Flash Signal"

Beginning at paragraph 1 on page 25 of Plaintiff's Markman Claim Construction Brief (hereafter Plaintiff's MCC Brief), T-Netix proposes that the "hook-flash signal" of each of claims 1, 7, 16, 19, 20, 25, 32, 37, 48 and 58 should be construed as:

> A temporary interruption of loop current at the remote telephone, for example, caused by briefly depressing and releasing the hook switch or rotary dial, consistent with an attempt to initiate a three-way call.

T-Netix's proposed construction is less definite than what is clearly specified in the '702 Patent. Thus, T-Netix's proposed construction falls short of informing the Court or jury what the "hook-flash signal" means in the context of the equipment and methods that are disclosed in the '702 Patent. T-Netix's proposed construction ignores the '702 Patent's explicit imposition of a specific frequency requirement on the meaning of the "hook-flash signal." Accordingly, for the reasons that follow, to construe the meaning of

the "hook-flash signal" in each of claims 1, 7, 16, 19, 20, 25, 32, 37, 48 and 58 as T-Netix requests, is incorrect as a matter of law.

According to the '702 Patent, the hook-flash signal is characterized by an energy peak at **270 Hz**. This energy peak at **270 Hz** occurs when the loop current in the telephone line is interrupted. The '702 Patent explains this at column 18, lines 49 - 55, of the '702 Patent (emphasis added):

> The signal created at the called party's telephone each time its loop current is interrupted [by the hookflash] has several **unique characteristics**. There is **an energy peak at about 270 Hz**. Since the called party's telephone is effectively disconnected from the circuit momentarily, no sounds from the called party's telephone will be added to **this characteristic sound**.

Plaintiff's expert, Mr. McAlexander, also relies on this passage in page C-a1 of his claim chart submitted as Plaintiff's evidence for the meaning of the "hook-flash signal."

The '702 Patent detects the hook flash by focusing on detection of this electrical energy peak believed to occur at about **270 Hz**. Accordingly, the Court should interpret the "hook-flash signal" in the claims of the '702 Patent to mean:

> A temporary interruption of loop current at the remote telephone, for example, caused by briefly depressing and releasing the hook switch or rotary dial, that generates an energy peak at about **270 Hz** at the local telephone.

T-Netix is similarly imprecise in its other proposals that involve the characteristic of the hook-flash signal. These imprecise constructions are similarly in error as a matter of law and are dealt with in Sections C, D and E of this paper.

C. T-Netix Improperly Construes "Frequency Characteristic of a Hook-Flash Signal"

At paragraph 16 beginning on page 35 of Plaintiff's MCC Brief, T-Netix improperly proposes that the "frequency characteristic of a hook-flash signal" as appears in claims 20, 32 and 48, should be construed to be "a frequency that is typical of those frequencies contained in a hook-flash signal." For the same reasons that are explained above, this definition is too imprecise and therefore is wrong as a matter of law.

The construction proposed by T-Netix ignores the well-defined frequency that is expressed in the '702 Patent. As explained above, the '702 Patent clearly defines the frequency characteristic of a hook-flash signal as having **an energy peak at about 270 Hz**. The construction advanced by T-Netix encompasses more than the peak energy **at about 270 Hz** that is expressed in the '702 Patent. In so doing, the construction that is proposed by T-Netix for the frequency characteristic of a hook-flash signal is incorrect as a matter of law.

D. T-Netix Improperly Construes "Frequency Range Characteristic of a Hook-Flash Signal"

T-Netix improperly proposes at paragraph 17 beginning on page 36 of Plaintiff's MCC Brief that the "frequency range characteristic of a hook-flash signal" as appears in claims 25, 37 and 58, should be construed as "a range of frequencies that are typical of those frequencies contained in a hook-flash signal." Such a construction is incorrect as a matter of law.

As explained above, the '702 Patent clearly defines the frequency characteristic of a hook-flash signal as **an energy peak at about 270 Hz**. In fact, the filters that are disclosed in the '702 Patent would significantly attenuate signals at frequencies above 300 Hz to the point that it would not be detectable by the device disclosed in the '702 Patent. Accordingly, the unspecified range that is proposed by T-Netix contradicts the express statement of the '702 Patent at column 18, lines 49 - 55 that the frequency characteristic of a hook-flash signal is **an energy peak at about 270 Hz**.

The only lawful construction of the "frequency range characteristic of a hook-flash signal" as appears in claims 25, 37 and 58, should be "**a range surrounding about 270 Hz**."

E. <u>T-Netix Improperly Construes "Energy Characteristic of a Hook-Flash"</u>

At paragraph 18 beginning on page 36 of Plaintiff's MCC Brief, T-Netix proposes an improper construction for each of the terms "energy characteristic of a hook-flash" and "energy pulse characteristic of a hook flash." The former appears in claims 29 and 62. The latter appears in claims 41, 60 and 61. In each case, T-Netix proposes that these terms should be construed as "[t]he energy that is typical of the energy contained in a hook-flash."

As explained above, according to the explicit text of the '702 Patent, "the energy that is typical of the energy contained in a hook-flash" is defined as an energy pulse at **about 270 Hz**. Accordingly, the proper construction of the phrase "energy characteristic of a hook-flash" as appears in claims 29 and 62, should be "an energy pulse at **about 270 Hz**." Similarly, the proper construction of the phrase "energy pulse characteristic of a

hook flash" as appears in claims 41, 60 and 61, should be "an energy pulse at **about 270 Hz**."

F. T-Netix Improperly Construes "Filter Means" of Claims 25, 26 and 37

T-Netix and Defendants agree that the term "filter means" of claims 25, 26 and 37 is written in means-plus-function format. However, T-Netix improperly proposes at paragraph 19 beginning on page 37 of Plaintiff's MCC Brief, that the "filter means" appearing in claims 25, 26 and 37, should be construed as:

> an analog or digital filter, including a digital signal processor, and equivalents thereof.

Accordingly, T-Netix proposes that a digital filter that includes a digital signal processor would be an example of a "filter means" as recited in each of claims 25, 26 and 37.

For the reasons explained below, to construe the meaning of the "filter means" in each of claims 25, 26 and 37 as T-Netix requests, is incorrect as a matter of law. Briefly, only an **analog band pass filter that limits the energy that passes through the filter to a frequency range between about 100 and 300 Hz** satisfies the proper construction of the meaning of the "filter means" in each of claims 25, 26 and 37.

The actual claim element that is being construed in claims 25, 26 and 37 is not just the two-word phrase "filter means." T-Netix merely uses the phrase "filter means" as a shorthand notation to refer this element of claims 25, 26 and 37. That shorthand notation is adopted in this paper for the sake of convenience. However, the complete claim element that is submitted for construction in claims 25, 26 and 37 is the "filter means for the limitation of energy to a frequency range characteristic of the hook-flash signal."

Under 35 U.S.C. § 112, Paragraph Six, which defines the means-plus-function format, the functional language is the key to interpreting each claim element that is expressed in the means-plus-function format. Applying the means-plus-function methodology outlined above in Section A of this paper, the first task is to identify the function that is being performed by the so-called "filter means." In the present case, the function is an "energy limiting" function that aims to limit the energy to the "frequency range characteristic of a hook-flash signal."

As explained above in Section D of this paper, the proper construction of the "frequency range characteristic of a hook-flash signal" as appears in claims 25, 26 (which depends on claim 25) and 37, is "**a range surrounding about 270 Hz**." Thus, the function of interest in the construction of the "filter means" of claims 25, 26 and 37 is the function of limiting the energy to a frequency range that is a range surrounding about 270 Hz.

The next task in construing the meaning of the "filter means" is to review the '702 Patent to find the device that performs the identified "range surrounding about 270 Hz energy limiting" function recited in each of claims 25, 26 and 37. The device that performs the identified "range surrounding about 270 Hz energy limiting" function recited in each of claims 25, 26 and 37 is a **100 to 300 Hz Band Pass Filter** that is disclosed at column 9, lines 29-30 of the '702 Patent. Again, Plaintiff's expert, Mr. McAlexander, also relies on this passage as evidence in page C-a44 of his claim chart submitted as Plaintiff's evidence for the meaning of the "filter means."

Moreover, such a band pass filter in the '702 Patent is an analog filter. In the same fashion that was explained above in Section A of this paper concerning claims 1-6

and 16-18, the "filter means" of claims 25, 26 and 37 bears the same relationship to the "specific electrical energy pulse" that the "low pass filter means" bore to the "specific electrical energy pulse" in claims 1-6 and 16-18. According to each of claims 25, 26 and 37, this "electrical energy pulse" has been passed through, i.e., filtered, by the "filter means." As noted above, only a digital signal can be passed through a digital filter. Since the "electrical energy pulse" is an analog signal, then it logically follows that the "filter means" of claims 25, 26 and 37 is restricted to an analog band pass filter. Accordingly, this analog filter performs the identified function of limiting the energy that is allowed to pass through the filter to a frequency range that is between about 100 and 300 Hz.

Thus, the means-plus-function format of the "filter means" of claims 25, 26 and 37, imposes on these claims a construction that requires more than just limiting the energy to a frequency range that is between about 100 and 300 Hz. Because of the specific structure that the '702 Patent provides for carrying out the function of the "filter means" of claims 25, 26 and 37, this claim element that is formatted in means-plus-function terms, must be given a construction of **an analog filter that limits the electrical energy that passes through the filter to a frequency range between about 100 and 300 Hz**.

Accordingly, the Court's construction of the "filter means" of claims 25, 26 and 37 should exclude the "digital filter, including a digital signal processor," that is asserted by T-Netix. Instead, the Court's construction of the "**filter means**" of claims 25, 26 and 37 should be held to be an **analog band pass filter that limits the energy that passes through the filter to a frequency range between about 270 and 300 Hz**.

G. <u>T-Netix Improperly Construes "Energy Detection Means"</u>

T-Netix and Defendants agree that the phrase "energy detection means" that appears in each of claims 1, 16, 18, 30, 31, 43, 44, 45, 46, 47 and 63 is indicative of a claim element that is written in the means-plus-function format. Similarly, T-Netix and Defendants agree that the "means for the detection of an energy pulse" of claims 20 and 32 is likewise indicative of a claim element that is written in means-plus-function format. Defendants further agree that there are two distinct groupings of claims that revolve around one of two different phrases expressed in the means-plus-function format. However, Defendants and T-Netix disagree on the identity of claims that are to be grouped together for purposes of the construction of one of these two different phrases expressed in the means-plus-function format. Moreover, while T-Netix would attribute the identical construction to both groupings, Defendants would attribute a different construction to each of the two groupings of claims.

Turning first to defining the two proper groupings of the claims, one begins by noting that the actual claim element that is being construed in independent claims 1, 16 and 18[2] is the following phrase:

> energy detection means for detecting a specific electrical energy pulse having been filtered by said filter means and having a predetermined minimum magnitude;

T-Netix refers to this phrase on page 26 of Plaintiff's MCC Brief by the shorthand notation "energy detection means."

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[2] An independent claim is one that does not contain a reference to another numbered claim. It can stand alone and thus is independent.

The actual claim element that is stated explicitly in independent claims 20 and 32 is the:

> means for detection of an energy pulse received by the local telephone equipment having a frequency characteristic of the hook-flash signal;

T-Netix refers to this phrase on page 26 of Plaintiff's MCC Brief by the shorthand notation "means for the detection of an energy pulse." However, each of claims 30 and 31 is a dependent claim[3] that depends on independent claim 20. Thus, the phrase "energy detection means" that is explicitly present in each of claims 30 and 31, refers back to and is a shorthand notation for the full expression that appears in independent claim 20 as the "means for detection of an energy pulse received by the local telephone equipment having a frequency characteristic of the hook-flash signal."

Similarly, each of claims 43, 44, 45, 46, and 47 is a dependent claim that depends on independent claim 32. Thus, the phrase "energy detection means" that is explicitly stated in each of claims 43, 44, 45, 46, and 47, refers back to and is a shorthand notation for the full expression that appears in independent claim 32 as the "means for detection of an energy pulse received by the local telephone equipment having a frequency characteristic of the hook-flash signal." Thus, the shorthand notation "means for the detection of an energy pulse" being used by T-Netix should be used in connection with the construction of claims 20 and 30, 31, 32, 43, 44, 45, 46, and 47.[4]

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[3] A dependent claim is one that contains a reference to another numbered claim and thus depends on another claim.

[4] The actual "energy detection means" claim element that is being construed in claim 63 is indeterminate because it appears for the first time in claim 63 and does not have any antecedent basis in any of the claims upon which it depends. Claim 63 depends on claim 56, which depends on claim 55, which depends on claim 53, which depends on claim 48.

In summary, the "energy detection means" phrase that T-Netix uses as a shorthand notation for the longer phrase that explicitly appears in the first grouping of independent claims (nos. 1, 16 and 18), should not be used in connection with the construction of claims 30, 31, 32, 43, 44, 45, 46, and 47, which belong with independent claims 20 and 32 in the second grouping.

For the sake of brevity throughout the rest of this Section G, the shorthand notation phrase "value detection means" shall be used as a stand-in for the longer phrase quoted above and applicable to claims 1-6 and 16-18. Similarly, the shorthand notation phrase "hook-flash detection means" shall be used as a stand-in for the longer phrase quoted above and applicable to claims 20, 30-32 and 43-47.

At paragraph 3 beginning on page 26 of Plaintiff's MCC Brief, T-Netix uses its two aforementioned shorthand notations and improperly proposes that the "energy detection means" of independent claims 1, 16 and 18 and the "means for detection of an energy pulse" of independent claims 20 and 32, should be construed to mean the same thing, namely:

> a threshold detector, digital signal processor, or a pattern matching subsystem, such as a neural network or fuzzy logic, and equivalents thereof.

For the reasons explained below, to construe the meaning of the two different means-plus-function elements as T-Netix requests, is incorrect as a matter of law. Briefly, only an analog threshold detector comprising an NSC LM 393 comparator and an

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None of claims 56, 55, 53 and 48 expressly refers to either an "energy detection means" or a "means for detecting energy." Claim 48 refers to a step of "detecting an energy pulse," but does not claim any device for performing this step of the method that is

NSC LM 383-1.2 voltage reference diode satisfies the proper construction of the meaning of the "value detection means" in each of independent claims 1, 16 and 18. Similarly, only a Motorola DSP56001digital signal processor that runs a particular algorithm or a NeuraLogix NLXI10 chip that runs a particular algorithm satisfies the proper construction of the meaning of the "hook-flash detection means" in each of claims 20, 30-32 and 43-47.

Applying the means-plus-function methodology outlined above in Section A of this paper, the first task is to identify the function that is being performed by the so-called "value detection means." In the case of claims 1, 16 and 18, the **function** is the **detecting of a specific electrical energy pulse that passes through the filter means and has a predetermined minimum value.**

As explained above in Section F of this paper, the "filter means" has been construed to be an **analog band pass filter that limits the energy that passes through the filter to a frequency range between about 100 and 300 Hz**. Thus, the function of interest for claims 1, 16 and 18 is the detecting of a specific electrical energy pulse that has a predetermined minimum value after having passed through an **analog band pass filter that limits the energy that passes through the filter to a frequency range between about 100 and 300 Hz**.

The next task in construing the meaning of the "value detection means" is to review the '702 Patent to find the device that performs the identified function that is recited in each of claims 1, 16 and 18. The function of interest is an energy detection

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claimed in claim 48. Accordingly, the phrase "energy detection means" in claim 63 does not lend itself to interpretation and renders claim 63 indefinite and therefore invalid.

function that calls for the detection of an energy pulse that has passed through an analog filter with a predetermined minimum value. Reviewing the '702 patent for an energy detection function reveals that the words "ENERGY LEVEL DETECT" are present in FIG. 1 and FIG. 1A of the '702 Patent. Each of the block diagrams of FIGS. 1 and 1A includes a block that is labeled with the phrase "ENERGY LEVEL DETECT." This block is designated by the numeral 450 in FIG. 1. At column 9, lines 34-40, the '702 patent refers to the circuit diagram in FIG. 1 when explaining that (emphasis added):

> Block 450 is an Absolute Value Amplifier (AVA) and Threshold Level Detector (TLD). AVD block 450 rectifies and amplifies the signals on line 451 to unipolar signals useful to the TLD. The TLD compares the level of the signal on line 451 with a preset level and provides a signal to the microprocessor on line 472 when the signal on 451 exceeds the preset level.

Plaintiff's expert, Mr. McAlexander, also relies on this passage in page C-a5 of his claim chart submitted as Plaintiff's evidence for the meaning of the "energy detection means." Thus, the '702 Patent explicitly discloses that the Absolute Value Amplifier (AVA) and Threshold Level Detector (TLD) detects energy at a predetermined minimum value. Accordingly, the '702 Patent discloses that the Energy Level Detect of Block 450 performs the required function of the "value detection means" of claims 1, 16 and 18.

The search for the specific device that does what is required of the Energy Level Detect of Block 450, namely, detecting energy at a predetermined minimum value, leads to the description of FIG. 13 at column 19, line 43 through column 20, line 5, of the '702 Patent, which explains that (emphasis added):

> The nature of the system response to called party speech, called party rotary dialing or hook switch flashing is such that normal speech will seldom pass through the Low Pass Filter, Block 400. However, some components

> of normal speech can cause momentary signal excursions at signal 464. Such excursions will most often be of a few hundred millivolts or less. Called party rotary dialed digits or hookflash induced signals will normally cause excursions of at least a few volts at signal 464. The strongest signals will normally be caused by the loop current interruption at the called party telephone with somewhat weaker signals being generated by the reestablishment of current at the end of each rotary dial pulse or the reconnect hookflash. It is therefor useful to set a known threshold below which small signal excursions, probably speech caused, will be ignored. To accomplish this, the **Threshold Level Detector** portion of block 450 is provided. The **Threshold Level Detector is implemented using a readily available comparator 468** along with associated resistances 469, 470 and 471 which interact to provide a controlled amount of hysteresis about the selected Threshold level 467 set by the **reference voltage indicated by zener diode 465** and resistance 466. Other methods of setting the threshold level are completely adequate. The output signal 472 could be used to interrupt the system controller, Block 800, at each occurrence of signal energy sufficient to trip the **Threshold Level Detector. Comparator 468 may be an LM393** and the **voltage reference diode may be an LM 383-1.2**, both of which are available from NSC.

Again, Plaintiff's expert, Mr. McAlexander, also relies on this passage in pages C-a5 and C-a6 of his claim chart submitted as Plaintiff's evidence for the meaning of the "energy detection means." Note that these are analog components, which is consistent with the fact that the signal under detection was passed through an analog filter. Because this "value detection means" element is written in means-plus-function form, T-Netix is limited to the corresponding structure disclosed in the specification and its equivalents. Kahn v. General Motors Corp., 135 F.3d 1472, 1476 (Fed. Cir. 1998). Thus, the means-plus-function format of the "value detection means" of claims 1-6 and 16-18, imposes on these claims a construction that requires more than just the function of detecting energy with a predetermined magnitude. Consistent with § 112, ¶ 6 of 35 U.S.C., this means-

plus-function clause is further limited to the specific corresponding structure identified in the specification and its equivalents. As explained above, the only corresponding structure identified in the '702 patent for the "value detection means" is the NSC LM 393 comparator and the NSC LM 383-1.2 voltage reference diode, which is the analog equipment described at column 19, line 43 through column 20, line 5 of the '702 Patent.

Turning next to the function that is being performed by the so-called "hook-flash detection means" in the case of claims 20, 30-32 and 43-47, the relevant function is the detecting of an energy pulse that is received by the local telephone equipment and has a frequency characteristic of the hook-flash signal.

As explained above in Sections B and C, respectively, of this paper, the proper construction of "hook-flash signal" in each of claims 1, 7, 16, 19, 20, 25, 32, 37, 48 and 58" and/or the "frequency characteristic of a hook-flash signal" as appears in claims 20 and 32, is an energy peak at "**about 270 Hz**." Thus, according to column 18, lines 49-55, of the '702 Patent, the hook-flash signal is characterized by an energy peak at **270 Hz**. Plaintiff's expert, Mr. McAlexander, also relies on this passage in page C-a1 of his claim chart submitted as Plaintiff's evidence for the meaning of the "hook-flash signal."[5]

Thus, the function of interest in the construction of the "hook-flash detection means" of claims 20, 30-32 and 43-47 is the function of detecting an energy pulse that is received by the local telephone equipment and has a frequency of about 270 Hz.

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[5] T-Netix's proprosed construction of "hook-flash signal", "A temporary interruption of loop current at the remote telephone, for example, caused by briefly depressing and releasing the hook switch or rotary dial, consistent with an attempt to initiate a three-way call" is not sufficiently precise to pinpoint the patent's very specific definition of hook-flash as involving an energy peak at about 270 Hz.

Accordingly, the next task in determining the meaning of the "hook-flash detection means" is to review the '702 Patent to find the device that performs the identified "hook-flash detection" function recited in each of claims 20, 30-32 and 43-47. Reviewing the drawings and text of the '702 patent reveals that FIG. 1B is described at column 6, lines 33-37, of the '702 Patent as (emphasis added):

> a block diagram of the **pulse-dial and hook-flash detection hardware** used in a third embodiment of the present invention **using digital signal processing to perform portions of the process for detecting specific pulse(s) caused by a hook flash-type signal.**

Similarly, FIG. 1C is described at column 6, lines 38-42, of the '702 Patent as (emphasis added):

> a block diagram of the **pulse-dial and hook-flash detection hardware** used in a fourth embodiment of the present invention which utilizes a **pattern matching subsystem (fuzzy or neural networks)** to **detect a specific pulse caused by a hook flash-type signal.**

The embodiment of FIG. 1B is further explained at column 10, lines 3-30, of the '702 Patent as follows (emphasis added):

> Fig. 1b is a block diagram showing the general organization of the pulse-dial and hook-switch flash supervision architecture for implementing the present invention wherein echo cancellation, call progress tone detection, DTMF tone detection, broadband energy detection, low pass filtering and **energy threshold detection are implemented with an emphasis on digital techniques**. In this implementation, **audio Signal 131'' is digitized for use by the Digital Signal Processing (DSP) subsystem.** Block 880 and by CODEC or ADC, Block 872. If Signal 131'' is in a digital form by nature of the specific implementation this step is not required. Likewise, audio Signal 132'', if not in digital form by nature of the implementation, is digitized for use by the DSP subsystem, Block 880 and by CODEC or ADC, Block 872. Control Signal 875 provides the timing and synchronization

> required by the CODEC's. Signal 881 provides the timing, synchronization and control for the DSP subsystem while Signal 882 provides the Controller, Block 880'' with signals equivalent to the Signal 659 and Signal 472. Either a Fast Fourier Transform (FFT) or sufficient filtering and **level measurement technique may be implemented, for example, to also form a ratio of the level of the detected pulse to the level of the detected ringback signal. Examples of components to effectively implement Block 880 as a subsystem include the Motorola DSP56001** available from Motorola, Inc., Schaumburg, Ill., and appropriate support circuitry.

Similarly, the embodiment of FIG. 1C is further explained at column 10, lines 31-60, of the '702 Patent as follows (emphasis added)):

> Fig. 1c is a block diagram which shows the general organization of the pulse-dial and **hook switch flash supervision architecture** for implementing the present invention wherein the **pulse signal detection function** provided by Block 400 and Block 450 is provided by a **Pattern Matching or Pattern Comparator subsystem, Block 860**. In this implementation, audio Signal 256''' is digitized, by a CODEC or ADC, and successive brief sample sequences are compared to a set of previously stored reference sample sequences. As a new sample sequence can be started with each new sample, the comparison process is essentially real-time. If a specific sample sequence of Signal 256''' closely matches one of the stored reference sample sequences, Signal 862 is used to inform the system controller, Block 800''' of such signal recognition.
>
> Block 860 would, for example, perform the functions of sampling the waveform on a periodic basis, storing the samples thus acquired in RAM. The samples would then be scaled such that **the highest peak signal for the particular sample series would be set to a pre-determined or maximum level** for the scale used. The sample series would then be compared with a reference sample set of signals. If any of the reference signals is a close match to the sample series currently being compared, a "match" flag would be set in the controller. **Examples of components for implementing Block 860 as a subsystem include the American NeuraLogix NLX110 available**

from American NeuraLogix, Inc., Stanford, Fla., and an ADC and appropriate support circuitry.

Plaintiff's expert, Mr. McAlexander, also relies on this passage in pages C-a4 and C-a5 of his claim chart submitted as Plaintiff's evidence for the meaning of the "energy detection means."

Thus, the specific devices that do what is required of the "hook-flash detection means," namely, detecting an energy pulse that is received by the local telephone equipment and has a frequency of about 270 Hz, include digital components that employ algorithms to manipulate the digital signals in a manner that produces the required function of the "hook-flash detection means." The '702 Patent only discloses two examples of these digital components employing algorithms, and these two components are the Motorola DSP56001 and the American NeuraLogix NLX110. Accordingly, the proper construction of the "hook-flash detection means" of claims 20, 30-32 and 43-47 must include the algorithms employed by the Motorola DSP56001 and the American NeuraLogix NLX110. WMS Gaming, Inc. v. International Game Technology, 184 F.3d 1339, 1348 (Fed. Cir. 1999).

The WMS Gaming decision involved construction of a patent claim's phrase that was expressed in the means-plus-function format. The district court properly found that the structure for carrying out the function was a microprocessor that was programmed to carry out an algorithm such as the algorithms employed by the Motorola DSP56001 and the American NeuraLogix NLX110 of the '702 Patent. However, the Court of Appeals ruled that "**the [district] court erred by failing to limit the claim to the algorithm disclosed in the specification.**" Id. Emphasis added.

In the present case, the '702 Patent fails to explicitly disclose the algorithms employed by the Motorola DSP56001 and the American NeuraLogix NLX110. Without these algorithms, the Court cannot provide a lawful construction of the "hook-flash detection means" of claims 20, 30-32 and 43-47. By asserting claims 20, 30-32 and 43-47 of the '702 Patent, which fails altogether to provide the necessary disclosure of the required algorithm, T-Netix is attempting to force the Court to err by issuing a legally insufficient construction of the "hook-flash detection means," which is presented in the means-plus-function format. Accordingly, the Court should declare claims 20, 30-32 and 43-47 to be legally insufficient and therefore incapable of being properly construed.

H. T-Netix Improperly Construes "Window Analyzation Means" and "Timer Means"

Claims 1, 16, 32 and 46 of the '702 patent require the presence of "window analyzation means." T-Netix proposes to construe this term as "[a] controller, a software timer, and optionally including a sound detector and equivalents thereof." Relatedly, claims 1, 7, 19 and 46 require the presence of a "timer means," which T-Netix proposes to construe as "[a] controller running a software timer, and equivalents thereof."

T-Netix's proposed construction of these terms is incorrect. As T-Netix itself admits, both "window analyzation means" and "timer means" are means-plus-function elements that must be construed according to 35 U.S.C. § 112, ¶ 6. Accordingly, the *Markman* definition of these terms necessarily includes both: (a) a function; and (b) the corresponding specific structure identified in the specification of the '702 Patent to perform the stated function.

Defendants generally agree with the *function* identified at column 3, lines 32-47, of the '702 Patent by T-Netix for "window analyzation means" and "timer means." It is measuring specific predetermined periods of time in which to check for network events that are indicative of efforts to initiate a three-way call. However, T-Netix's proposed *Markman* definition fails entirely to include the corresponding specific structure as required by 35 U.S.C. § 112, ¶ 6.

It is not, however, difficult to identify the proper corresponding specific structure. As T-Netix notes in its discussion of the "Other Intrinsic Evidence" related to these terms, the same passages of the specification support both "window analyzation means" and "timer means," specifically col. 3, lines 32-47, col. 9, lines 40-50, col. 12, line 65 through col. 13, line 10, 13, line 40-54. This description of the corresponding structure identifies a timer mechanism programmed to implement very specific time windows, *e.g.*:

> In this situation where the apparatus is designed or programmed to detect a remote party's attempt to initiate a 3-way conference call, the software window analyzer includes a timer or timer means for cooperating with the energy detector so that the timer begins **running for a first predetermined period (about 1.4 seconds)** when a specific energy pulse is detected by the energy detector. The software window analyzer also includes a sound detection means for detecting sound on a telephone line and for cooperating with a timer so that the sound detection means is activated at the end of the first predetermined period for a **second predetermined maximum time period (up to about 1.3 seconds)**. If sound is not detected during the second predetermined time period, such indicates that the remote party has attempted to initiate a 3-way conference call.

Col. 3, lines 32-47.

Accordingly, the proper *Markman* definition of "window analyzation means" and "timer means" includes both: (a) the *function* of measuring predetermined time intervals

of 1.4 seconds and 1.3 seconds in which to check for network events indicative of attempts at three-way calling; and (b) the corresponding structure of a timer and related equipment programmed as described above (and in column 3, lines 32-47). See, WMS Gaming, 184 F.3d at 1348.

Respectfully Submitted,

Date: 6-25-02

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that the foregoing DEFENDANTS' RESPONSE TO PLAINTIFF'S MARKMAN CLAIM CONSTRUCTION BRIEF FOR THE KITCHIN '702 PATENT was served on the Plaintiff by sending a copy via Federal Express addressed to the Plaintiff's counsel of record as follows:

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